

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Offic**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
087788,560	01/24/97	YAMAZAKI	S 0756-1626

B2M1/0309

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2010 CORPORATE RIDGE  
SUITE 600  
MCLEAN VA 22102

EXAMINER

FAHMY, W

ART UNIT  
2508

PAPER NUMBER

DATE MAILED: 03/09/98

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No. <b>08/788,560</b>	Applicant(s) <b>Yamazaki et al</b>
	Examiner <b>Wael Fahmy</b>	Group Art Unit <b>2508</b>

Responsive to communication(s) filed on Dec 1, 1997

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 21-33 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 21-33 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1 Attorney's docket number: 0756-1626

2 Filing Date: 12/26/91

3 Applicant: Yamazaki et al

4 EXAMINER : Wael M.Fahmy

5

6 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all  
7 obviousness rejections set forth in this Office action:

8 (a) A patent may not be obtained though the invention is not identically disclosed or described as set  
9 forth in section 102 of this title, if the differences between the subject matter sought to be patented and  
10 the prior art are such that the subject matter as a whole would have been obvious at the time the  
11 invention was made to a person having ordinary skill in the art to which said subject matter pertains.  
12 Patentability shall not be negated by the manner in which the invention was made.

13

14 Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
15 Wilson et al in view of Tyson et al.

16 Wilson et al shows in fig.(3) all claimed subject matter including a boundary  
17 region between at least one of the source and drain regions having a greater bandgap  
18 than any of said source ,drain and channel regions (the boundary regions 42C are  
19 doped with either oxygen or nitrogen), but omits the formation of the LDD as in the  
20 claimed invention. However Tyson et al shows in fig.(2) that a source and drain region  
21 can incorporate LDD regions (210,220) adjacent the channel region. Therefore it would  
22 have been obvious to one of ordinary skill in the art to use the LDD structure of Tyson  
23 et al in the source and drain regions of Wilson et al, since the LDD regions relax the  
24 concentration of the electric field which enhances device performance.

25 Claims 25-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
26 Wilson et al in view of Tyson et al and Ishizu et al.

27 The device of Wilson et al in view of Tyson et al discloses all claimed subject  
28 matter, but omits the formation of the TFT in an electro optical device.

1        However Ishizu et al teaches that TFTs are used in electro-optical devices (see  
2 col.1, lines 18-33). Therefore it would have been obvious to one of ordinary skill in the  
3 art to use the transistor of Wilson et al in view of Tyson et al in an electro-optical  
4 device, since the prior art teaches that TFTs are used in electro-optical devices. As to  
5 claims 27,31 and 33 see above mentioned criticality caselaw. As to claim 32, since  
6 oxygen, nitrogen and carbon all achieve a region at the boundary of the channel and  
7 the source/drain regions having a higher bandgap than the other regions, the  
8 specification does not recite any criticality of why carbon is preferred to oxygen and  
9 nitrogen.

10 **RESPONSE:**

11        Applicant's state that "....Wilson fails to teach the claimed LDD structure and  
12 relies on Tyson for showing this feature. However it should be noted that Tyson is silent  
13 about the FDD structure, recited in claim 24 for example, so that the combination of  
14 LDD and FDD structures is entirely unclear from the combination relied upon in the  
15 Official Action...". The examiner respectfully submits that applicant is attacking the  
16 references individually where the rejection is based on a combination of references,  
17 see *In re Young*, 159 USPQ 725 (CCPA 1970). It is also submitted that a reference is  
18 to be considered not only for what it expressly states, but for what it would reasonably  
19 have suggested to one of ordinary skill in the art, see *In re DeLisle*, 160 USPQ 170  
20 (CCPA 1969), in this case it is clear to one of ordinary skill in the art that a heavily  
21 doped source region can be formed to have an LDD region since such a source/drain  
22 region is very well known in the art to relax the electric field. The examiner submits  
23 patent no. 4,642,878 to prove that the use of LDD regions is well known in the art  
24 (see col.4, lines 3-16).

1           **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time  
2 policy as set forth in 37 CFR 1.136(a).

3           A shortened statutory period for reply to this final action is set to expire THREE  
4 MONTHS from the mailing date of this action. In the event a first reply is filed within  
5 TWO MONTHS of the mailing date of this final action and the advisory action is not  
6 mailed until after the end of the THREE-MONTH shortened statutory period, then the  
7 shortened statutory period will expire on the date the advisory action is mailed, and any  
8 extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of  
9 the advisory action. In no event will the statutory period for reply expire later than SIX  
10 MONTHS from the date of this final action.

11           **Papers related to this application may be submitted to Group 2500 by**  
12 **facsimile transmission. Papers should be faxed to Group 2500 via the Group**  
13 **2500 Fax center located in Crystal Plaza 2, room 4 - A11. The faxing of such**  
14 **papers must conform with the notice published in the Official Gazette, 1096 OG**  
15 **30 (November 15, 1989). The Group 2508 Fax Center number is (703) 308-7723 &**  
16 **the backup number is (703) 308-7722. The Group 2508 Fax Center is to be used**  
17 **only for papers related to Group 2508 applications.**

18           Any inquiry concerning this communication or any earlier  
19 communication from the Examiner should be directed to **Examiner Wael**  
20 **M.Fahmy** whose telephone number is **(703) 308-4918**. The Examiner is  
21 in the Office generally between the hours of 6:45 AM to 4:15 PM (Eastern  
22 Standard Time) Monday through Friday.

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1            Any inquiry of a general nature or relating to the status of this  
2            application should be directed to the **Group 2500 Receptionist** whose  
3            telephone number is (703) 308-0956.

4            WMF  
5            02 March 1998  
6  
7  
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Wael M. Fahmy  
Primary Examiner  
Art Unit 2508